CHAPTER 3: MAIN DRIVE SECTION

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Test Mode No. 60 15 rpm Drum rotation
No. 61 30 rpm Drum rotation
No. 62 Variable speed Drum rotation

THEORY OF OPERATION

1. Main Drive

- Rotation of Main Pulley

The Main motor provides the drive for the rotation of the Main pulley via the Cam pulley and Main belt.

- Rotation of Drum

The Main pulley is attached on the Main shaft, which is engaged with the Main shaft catch of the Drum.

While the Main motor is operating, therefore, the Drum is rotating, driven by the Main shaft.

- Control of Rotation Speed

The Main motor speed is controlled by the Encoder disc and sensor, which are attached on the top of the Main motor.

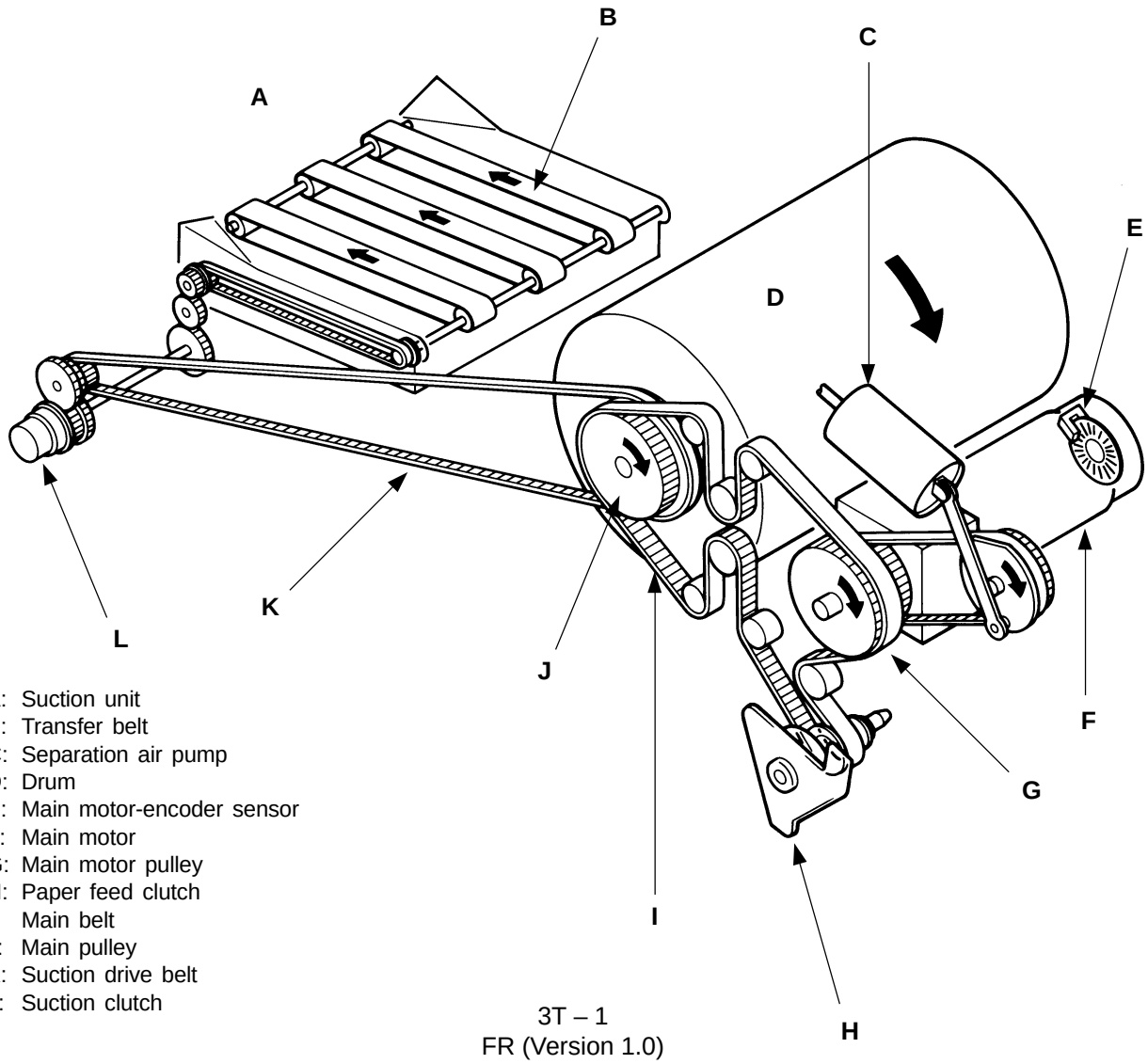
The Encoder sensor counts the number of slits of the Encoder disc which has passed the sensor in given period, and controls the actual drum rotation speed.

- First paper feed area drive

When the paper feed clutch is activated, the main drive is transferred to the First paper feed drive via clutch.

- Separation Air Pump

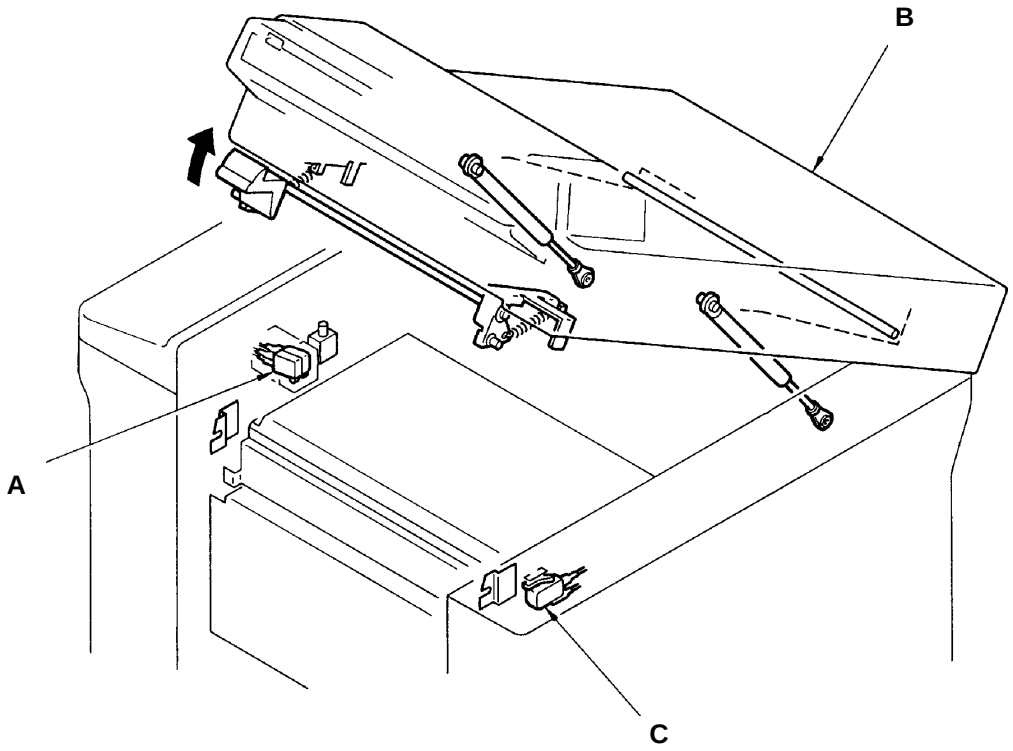
The Separation air pump is driven by the Main motor via a belt.



A: Suction unit
B: Transfer belt
C: Separation air pump
D: Drum
E: Main motor-encoder sensor
F: Main motor
G: Main motor pulley
H: Paper feed clutch
I: Main belt
J: Main pulley
K: Suction drive belt
L: Suction clutch

2. Main Motor Safety Switch

Scanner table Set SW detects if the scanner table has been set in position.
When the scanner table is left open, the interlock switch neither for the thermal print head not for the main motor can be pushed, where power supply to the main motor and to the thermal head is cut off.

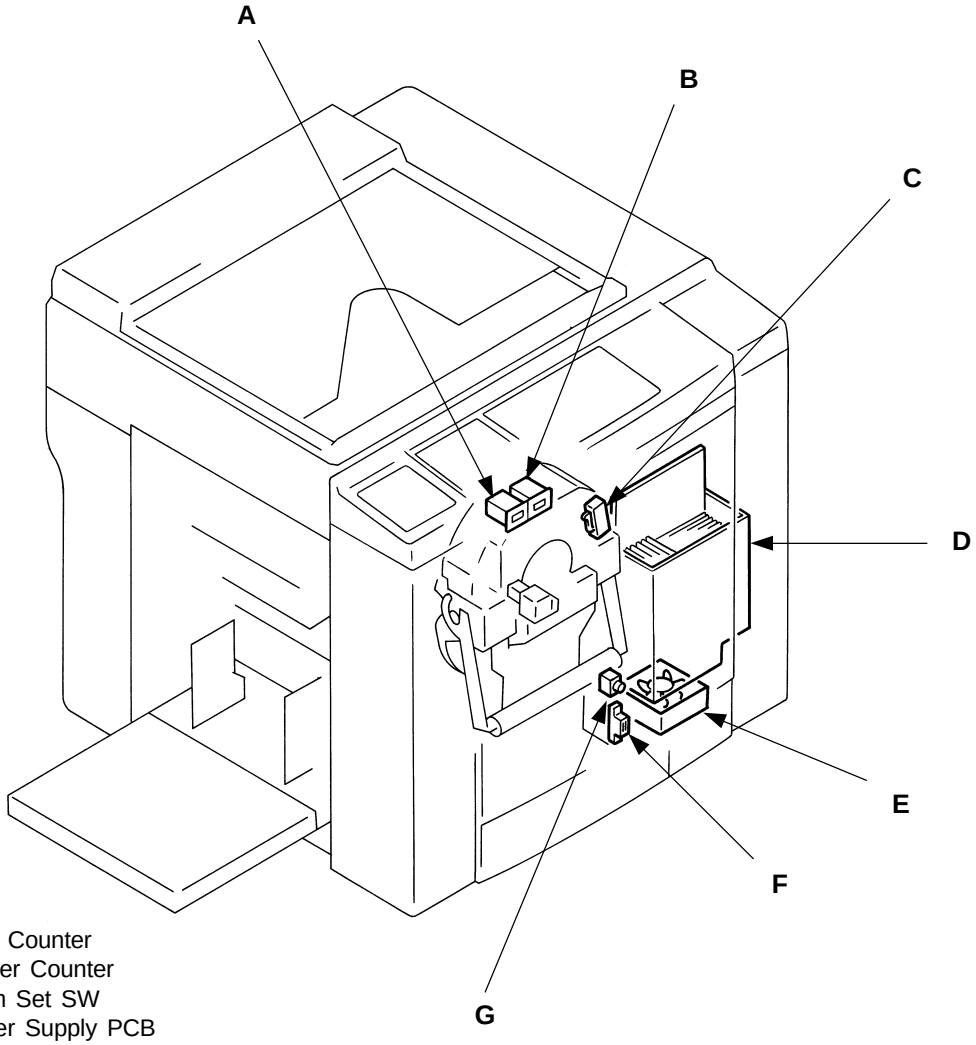


A: Interlock SW
B: Scanner table
C: Scanner table set SW

If Scanner table Set Switch or Interlock Switch (for main motor) has not been pressed, “CLOSE SCANNER TABLE” message is displayed.

Test Mode No. 16 Drum home position button
– Short interval beeps when pressed
No. 18 Drum set SW
– Short interval beeps when pressed
No. 30 Front cover set sensor
– Short interval beeps when set

3. Other Mechanisms



A: Total Counter
B: Master Counter
C: Drum Set SW
D: Power Supply PCB
E: Power Supply Cooling Fan
F: Front Cover Set Sensor
G: Drum Home Position Button

- Power Supply Cooling Fan
When the machine is in idling condition, the Power supply pcb cooling fan rotates at low speed, and at high speed when in master making or printing operation.

- Drum Home Position Button
Main motor rotates at 15 rpm while the Drum home position button is pressed with the Front cover set sensor in set condition (for servicing purpose).

- Total Counter
Total counter adds one count during printing after each paper ejection without paper jam.

- Master Counter
Master counter adds one count during master loading on drum after each master loading without master jams.

- Front Cover Set Sensor
If the Front cover set sensor is not detecting the Front cover, “CLOSE FRONT COVER” will be displayed.

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REMOVAL & ASSEMBLY

1. Main Shaft Ass'y

< Removal Procedure >

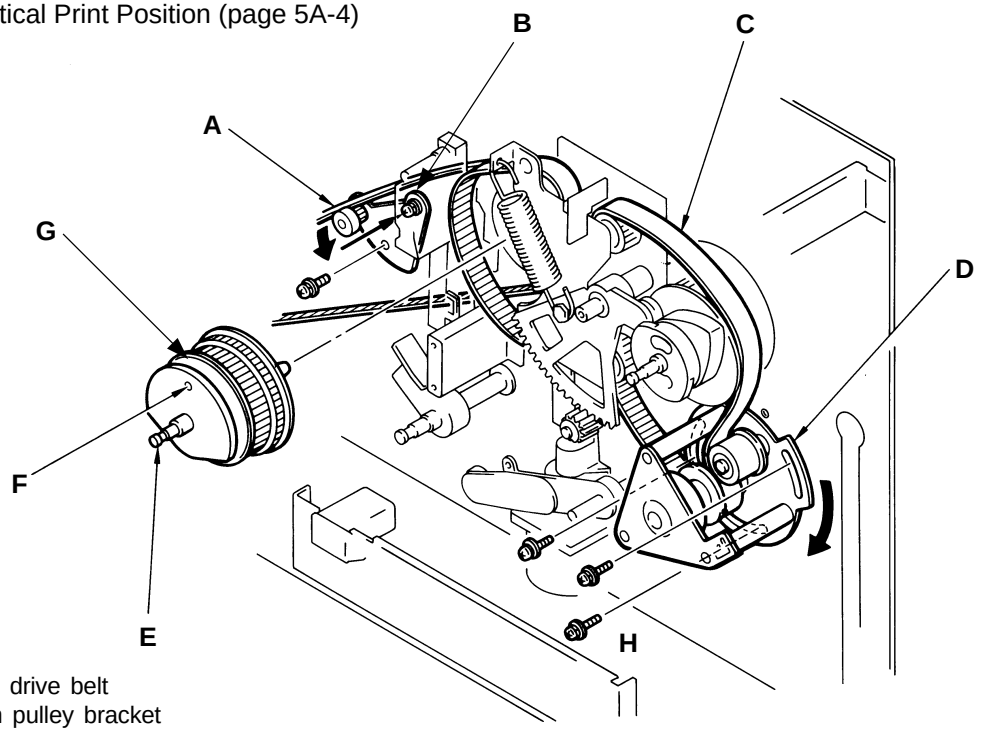
1. Lower the paper feed tray, remove the drum, disconnect the machine from the power supply and remove the following parts.
   - Scraper unit (page 4R-4)
   - Timing spring
   - P disc, Pressure sensor disc, Pressure shaft face plate, Main shaft face plate (page 6R-1)
   - Pressure Link ass'y (page 6R-2)
2. Remove three mounting screws on the Paper feed clutch base and let the Paper feed clutch unit hang free to loosen the tension of the Main belt further.
3. Loosen mounting screw on the Tension pulley bracket and loosen the tension of the Suction drive belt.
4. Remove the belts from the Main pulley and then remove the Main shaft ass'y.

- Precautions in Assembly -

- When you disassemble and reassemble the Main shaft assembly into the Pressure cam and Main shaft, align the alignment holes of the two parts with each other.
- Install the Main shaft ass'y so that the alignment hole on the Pressure cam can point up.

- Adjustments and checks after installation

- Resting Position of Pressure Lever (page 6A-3)
- Position of Pressure Sensor Disc (page 6A-7)
- Position of P Disc (page 4A-5)
- Vertical Print Position (page 5A-4)



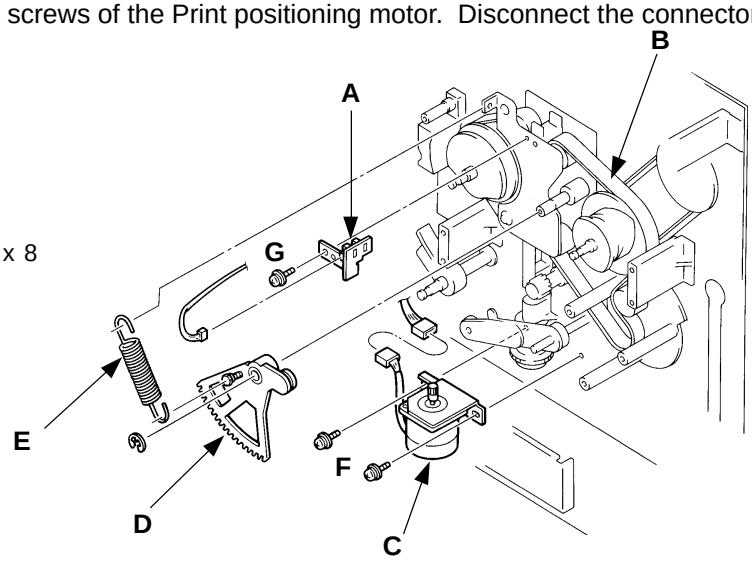
A: Suction drive belt
B: Tension pulley bracket
C: Main belt
D: Paper feed clutch base
E: Main shaft ass'y
F: Alignment hole of pressure cam
G: Alignment hole of main shaft
H: Pan-head Screw SW. W M4 x 8

2. Drive Unit

<Removal Procedure>

1. Set the Drum at the home position, lower the Paper feed tray, turn off the power, and remove the following parts.
   - Scraper Unit (page 4R-4)
   - Rear cover, timing spring (Loosen the tension of the main belt)
   - P disc, Pressure sensor disc, Pressure shaft face plate, Main shaft face plate (page 6R-1)
   - Pressure link ass'y (page 6R-2)
2. Remove the Sector gear spring, and the E-ring of the Sector gear, followed by the Sector gear.
3. Disconnect the connector of the Vertical centering sensor, remove a mounting screw of the Mounting plate, and then, remove the sensor together with the mounting plate.
4. Remove two mounting screws of the Print positioning motor. Disconnect the connector of the motor to remove.

A: Vertical centering sensor
B: Main belt
C: Print positioning motor
D: Sector gear
E: Sector gear spring
F: Pan-head Screw SW.W M4 x 8
G: IT Screw M3 x 5



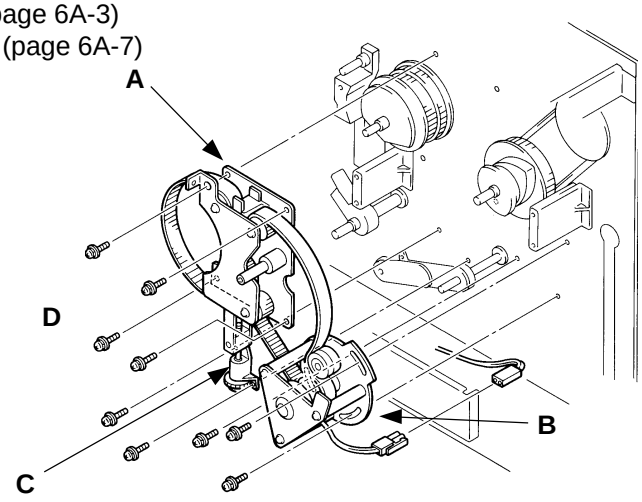
5. Remove three mounting screws on the Paper feed clutch base, four of them from the Drive unit, and two of them from the slide plate base block. Disconnect the connector of the Paper feed clutch to remove the Drive unit.

-Precautins in Assembly-

Adjustments and checks after installation

- Resting Position of Pressure Lever (page 6A-3)
- Position of the Pressure Sensor Disc (page 6A-7)
- Position of P-disc (page 4A-5)
- Vertical Print Position (page 5A-4)

A: Drive unit
B: Paper feed clutch base Ass'y
C: Slide plate base block
D: Pan-head Screw SW.W M4 x 8



3. Main Motor Unit

< Removal Procedure >

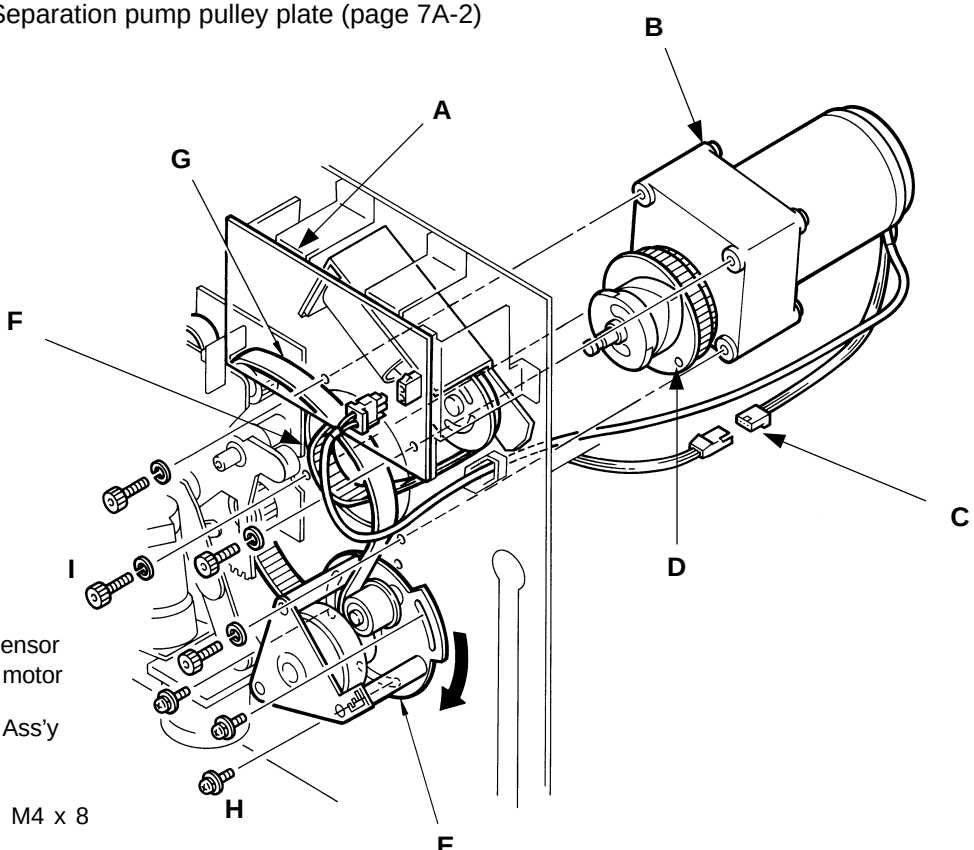
1. Lower the paper feed tray, disconnect the machine from the power supply and remove the following parts.
   - Back cover
   - Paper feed cover, Scraper unit (page 4R-4)
   - Master disposal box, Master removal unit (page 11R-1)
   - Timing spring
   - P disc, Pressure sensor disc, Pressure shaft face plate, Main shaft face plate (page 6R-1)
   - Sector gear spring
2. Remove three mounting screws on the Paper feed clutch base and let the Paper feed clutch unit hang free to loosen the tension of the Main belt further.
3. Disconnect the connector CN4 (for the Main motor) on the Motor control PCB.
4. Disconnect the connector of the Encoder sensor attached to the Main motor unit.
5. Remove four mounting screws of the Main motor unit.
6. Disengage the Main belt and Air pump drive belt from the pulleys attached to the Main motor unit and take out the unit from inside the body.

- Precautions in Assembly -

- As shown in the figure below, it is recommended to direct a hole in the pulley of the Main motor unit toward the lower right screw of the Main motor prior to setting the main belt.

- Adjustments and checks after installation

- Resting position of Pressure lever (page 6A-3)
- Position of Pressure sensor disc (page 6A-7)
- Position of P Disc (page 4A-5)
- Vertical print position (page 5A-4)
- Position of Separation pump pulley plate (page 7A-2)



A: Motor control PCB
B: Main motor unit
C: Connector of Encoder sensor
D: Alignment hole of main motor pulley
E: Paper feed clutch base Ass'y
F: Air pump drive belt
G: Main belt
H: Pan-head Screw SW.W. M4 x 8
I: Cap Screw SW

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